

Remarks

Support for Amendments

The foregoing amendments to claim 55 are fully supported in the specification and claims as originally filed. Accordingly, these amendments add no new matter; their entry and consideration are respectfully requested.

Status of the Claims

By the forgoing amendments, claim 55 has been amended. Upon entry of the amendments, claims 55-79 are pending in the application, with claims 55 and 71 being the independent claims.

Summary of the Office Action

In the Office Action, the Examiner has made one rejection of, and one objection to, the claims. Applicants respectfully offer the following remarks to traverse the rejection and render moot the objection.

Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections under 35 U.S.C. § 102

In the Office Action at pages 2-3, sections 2-3, the Examiner has rejected claims 55-62 and 65-79 under 35 U.S.C. § 102(b) as being anticipated by *Chamberlin et al.*, WO 95/20682. Applicants respectfully traverse this rejection.

The Commissioner (through the Examiner) bears the initial duty of supplying the factual basis for supporting a rejection of a patent application, including a rejection based on anticipation. *In re Wagner*, 379 F.2d 1011, 154 USPQ 173, 178 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968); *see also In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443, 1447 (Fed. Cir. 1992). "It is by now well settled that the burden of establishing a *prima facie* case of anticipation resides with the Patent and Trademark Office." *In re Skinner*, 2 USPQ2d 1788, 1788-89 (B.P.A.I. 1986). As stated by the Federal Circuit, "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1456, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)). Furthermore, "[t]here must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Found. v. Genentech Inc.*, 927 F.2d 1565, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991). In addition, a claim can only be anticipated by a publication if the publication describes the claimed invention with sufficient detail to place the public in possession of the invention. *See In re Donohue*, 766 F.2d 531, 533 (Fed. Cir. 1985); *see also PPG Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir. 1996) ("To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter."). In the present case these burdens have not been satisfied.

The present invention, as claimed, discloses a formula which the Examiner alleges is anticipated by Chamberlin. Specifically, the Examiner alleges that claim 55 is anticipated by Chamberlin, stating that "if X of the reference is C=O, it can be viewed as one of the R1-R3 of the instant application, therefore the other substituent can be alkyl moieties." Office

Action at page 3, first paragraph. The Examiner further states that "[t]he R1-R3 are just letters to symbolize groups of chemical substituent [sic] R1-R3 of the instant application do not have to be the R1-R3 of the reference." *Id.* Applicants respectfully disagree with the Examiner's allegations.

Like Chamberlin, the formula of the present invention provides for the substitution of chemical moieties as substituents, *e.g.*, hydrogen as R1-R3. However, Chamberlin fails to disclose all of the elements of claim 55 as currently presented, as is required by *Lindemann, Scripps, and Donohue*. For example, in order for claim 55 to be anticipated by Chamberlin, if one of the R groups of claim 55 is =O (*e.g.*, R₁), and could be viewed as the X group of Chamberlin, then all of the remaining groups of claim 55 (A, R₂ and R₃) must correspond to the R groups (R¹, R² and R³) of Chamberlin. However, this is not possible. For this to occur, the A group and the two remaining R₁-R₃ groups (*e.g.*, R₂ and R₃) of claim 55 *must all be* hydrogen, methyl, ethyl, or propyl, since Chamberlin expressly requires that all of R¹, R² and R³ *must be* hydrogen, methyl, ethyl or propyl. See Chamberlin at page 9, lines 2-12. In contrast, claim 55 provides, "that if one, and only one, of R₁, R₂ and R₃ is =O, then A *is none of hydrogen, methyl, ethyl and propyl*" (emphasis added). Thus, for example, if the X group of Chamberlin were =O, and the R¹-R³ groups of Chamberlin were all selected from the group consisting of hydrogen, methyl, ethyl and propyl, claim 55 would also have to have three R groups selected from hydrogen, methyl, ethyl and propyl and one =O group. However, while one of the R groups of claim 55 can be =O, not all of the remaining groups could be selected from hydrogen, methyl, ethyl and propyl because, as amended, the A group of claim 55 cannot be hydrogen, methyl, ethyl or propyl, if one, and only one, of the R groups is =O. Therefore, Chamberlin does not and cannot anticipate claim 55.

Furthermore, it is possible that the A group of claim 55 could be construed as one of the R¹-R³ groups of Chamberlin. However, if it is assumed that the A group of claim 55 corresponds to one of the R groups in Chamberlin, then two of the R groups of claim 55 (*e.g.*, R₁ and R₂) must correspond to the other two R groups in Chamberlin. In such a scenario, three groups of claim 55 (A, R₁ and R₂) will correspond to the R groups of Chamberlin and thus, all three groups must be selected from the group consisting of hydrogen, methyl, ethyl and propyl. See Chamberlin at page 9, lines 2-12. This cannot occur. Claim 55, as currently presented, states that "no more than two of A, R₁, R₂, and R₃ are selected from the group consisting of hydrogen, methyl, ethyl and propyl."

As Applicants have demonstrated above, no possible composition disclosed in Chamberlin falls within claim 55. Therefore, Chamberlin cannot and does not anticipate claim 55.

In the Office Action, at page 3, second paragraph, the Examiner also states that it is unclear how the pyrrolidine ring of formula II of claim 55 does not have the same structure of that disclosed in Chamberlin. More specifically, the Examiner states, "claim 55 is viewed to be identical, for example, when X is C, and Y is N." See Office Action, page 3, second paragraph. Applicants disagree with the Examiner's contentions.

As currently presented, claim 55 provides that "if either X or Y [in formula II] is N, then the other is not C." Because the R¹ and R⁴ groups in Chamberlin can only be hydrogen or certain alkyl groups, only such groups can be involved in the formation of the pyrrolidine ring in Chamberlin (see Chamberlin at page 9, lines 2-23). In addition, in order for pyrrolidine ring formation to occur in Chamberlin, either R¹ must be H and R⁴ must be methyl, or R⁴ must be H and R¹ must be methyl, ethyl or propyl (*i.e.*, there will be no ring formation if both R¹ and R⁴ are hydrogen) (see *id.*). Therefore, the pyrrolidine ring of

Chamberlin *must* consist of C atoms and at most one N atom. By contrast, claim 55, as currently presented, cannot contain only N and C in the pyrrolidine ring. That is, if the pyrrolidine ring of the compound of claim 55 contains N (*e.g.*, if Y is N), then the ring *must* also contain something other than C (*e.g.*, X must be N, O, P or S, *but not* C). Thus, the pyrrolidine ring compound disclosed in Chamberlin does not and cannot anticipate Formula II of claim 55 as currently presented.

The Chamberlin reference does not disclose "each and every element of the claimed invention" as required by *Lindemann*, in order to make out a *prima facie* case of anticipation. In addition, there are clearly "difference[s] between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention," contrary to the anticipation requirements of *Scripps*.

In view of the forgoing remarks, Applicants respectfully assert that claims 55-62 and 65-79 are not anticipated by Chamberlin, and respectfully request reconsideration and withdrawal of the rejection.

Objection to Claims 63 and 64

In the Office Action, at page 3, section 4, the Examiner has objected to claims 63 and 64 as being dependent upon a rejected claim. As discussed in detail above, claim 60 (from which claim 63 depends) is allowable. In turn, then, Applicants respectfully assert that claims 63 and 64 (which depends from claim 63) are also allowable. Therefore, this objection has been rendered moot.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply and allowance of all pending claims are respectfully requested.

Respectfully submitted,

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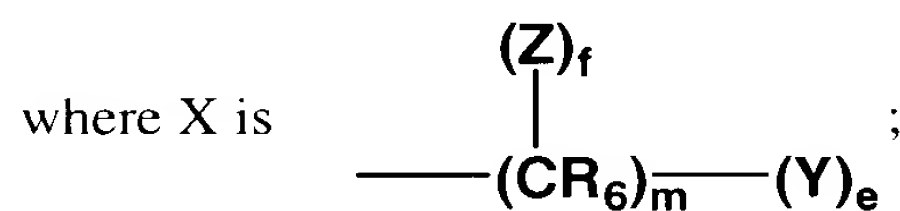
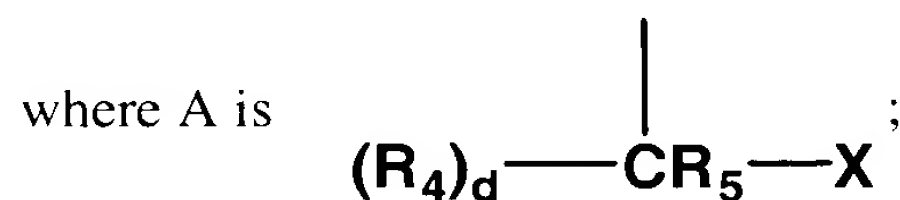
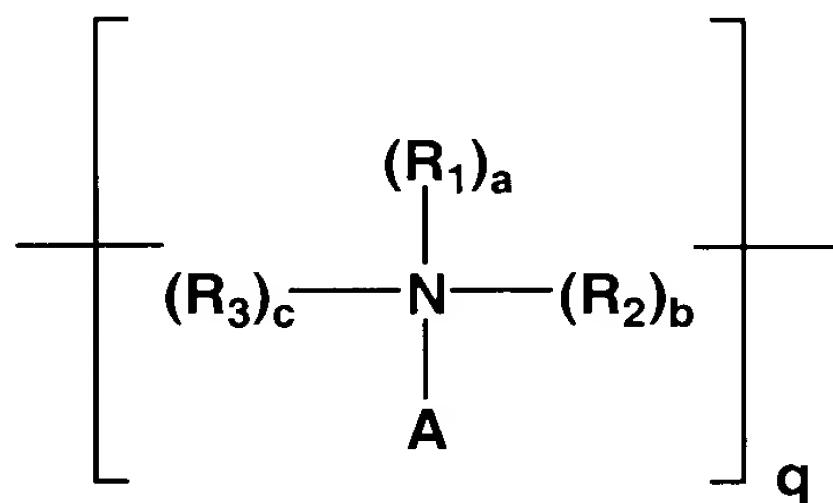
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Version with markings to show changes made

55. (Once amended) A composition for use in synthesizing a nucleic acid molecule, comprising one or more enzymes having nucleic acid polymerase activity and one or more [isolated] compounds having a chemical formula selected from the group consisting of formula I or formula II, or a salt thereof, wherein said compound is not betaine:

Formula I:



where N is positively charged;

wherein $q = 1$ to 100,000, wherein when $q = 2$ to 100,000 each monomer of formula I may be the same as or different from the other monomers of formula I;

wherein Z may be the same as or different from Y;

wherein each Y and Z are independently selected from the group consisting of -OH, -NH₂, -SH, -PO₃H, -CO₂H, -SO₃H and hydrogen;

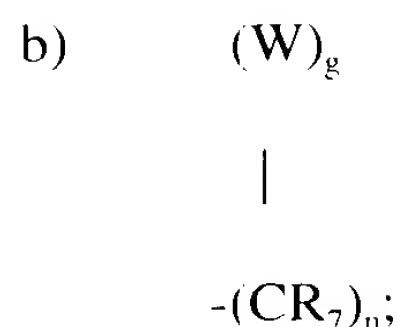
wherein f is an integer from 0 to 2, m is an integer from 0 to 20 and e is an integer from 0 to 2;

wherein R₄, R₅, and R₆ may be the same or different and are independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, amino, mercaptan, thiol, halo, nitro, nitrilo, hydroxy, hydroxyalkyl, hydroxyaryl, phosphato, alkoxy, oxide, ether, ester (alkanoyloxy), carboxy, carbonyl, sulfonyl, sulfonic and amido groups, and d is an integer from 0 to 2;

wherein a, b, and c are independently an integer from 0 to 1, with the proviso that no more than two of a, b, and c are zero;

wherein R₁, R₂ and R₃ may be the same or different and are independently selected from the group consisting of:

a) =O and;

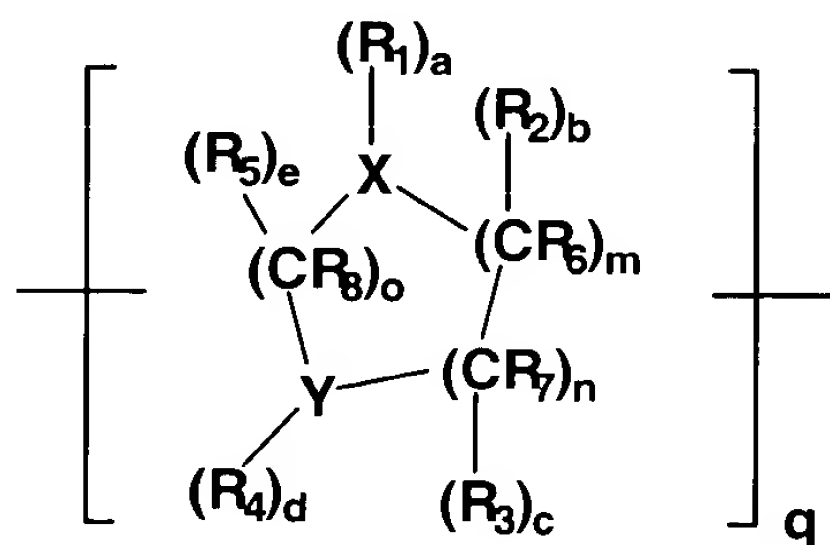


with the proviso that no more than two of A , R_1 , R_2 and R_3 are selected from the group consisting of hydrogen, methyl, ethyl and propyl; and

with the proviso that if one, and only one, of R_1 , R_2 and R_3 is $=\text{O}$, then A is none of hydrogen, methyl, ethyl and propyl;

wherein each R_7 and W may be the same or different and are independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, amino, thiol, mercaptan, halo, nitro, nitrilo, hydroxy, hydroxyalkyl, hydroxyaryl, phosphato, alkoxy, oxide, ether, ester (alkanoyloxy), carboxy, carbonyl, sulfonyl, sulfonic and amido groups; g is an integer from 0 to 2 and n is an integer from 0 to 20, with the proviso that if two of R_1 , R_2 , and R_3 are $=\text{O}$, then the other is not $=\text{O}$;

Formula II:



wherein Formula II is saturated or unsaturated;

wherein $q = 1$ to 100,000, wherein when $q = 2$ to 100,000, each monomer of formula II may be the same as or different from each other monomer of formula II;

wherein X is selected from the group consisting of N, C, O, P and S;

wherein Y is selected from the group consisting of O, N, S, P, C, -O-NH-, -O-CH₂-NH-, -O-CH₂-O-, -NH-CH₂-NH-, -O-CH(CH₃)-NH-, -NH-CH(CH₃)-NH-, -O-CH(CH₃)-O-, -NH-C(CH₃)₂-NH-, -O-S-, -O-CH₂-S-, -NH-S-, -NH-CH₂-S-, and other mercaptan, phosphato, alkoxy, oxide, ether, esters (alkanoyloxy), carboxy, sulfonyl, sulfonic and amido groups;

with the proviso that if either X or Y is N, then the other is not C;

wherein R₁, R₂, R₃, R₄, R₅, R₆, R₇ and R₈ may be the same or different and are independently selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, amino, thiol, mercaptan, halo, nitro, nitrilo, hydroxy, hydroxyalkyl, hydroxyaryl, phosphato, alkoxy, oxide, ether, ester (alkanoyloxy), carboxy, sulfonyl, sulfonic and amido groups; and

wherein a, b, c, d, e, m, n and o are integers which may be the same or different and are independently selected from 0 to 2 for a, b, c, d, and e, and 0 to 5 for m, n and o.